



**WIRELESS COMMUNICATION
PRODUCTS & SYSTEMS**

Corporate Headquarters

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September 19, 1996

William F. Caton, Secretary
Federal Communications Commission
Room 222
1919 M Street N.W.
Washington, D.C. 20554

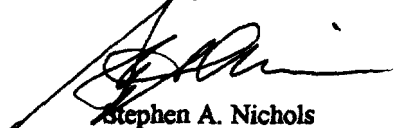
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Dear Mr. Secretary,

Enclosed are our comments on the FCC Notice of Proposed Rule Making WT Docket No. 96-86.

Sincerely,


Stephen A. Nichols
Senior Director of Marketing

enclosure

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
The Development of Operational,)
Technical, and Spectrum Requirements)
for Meeting Federal, State and Local)
Public Safety Agency Communication)
Requirements Through the Year 2010)

WT Docket No. 96-86

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COMMENTS OF E.F. JOHNSON COMPANY

E.F. Johnson Company (E.F. Johnson or the Company) hereby submits its Comments in response to the Notice of Proposed Rule Making (Notice) adopted in the above referenced proceeding.

I. INTRODUCTION

E.F. Johnson is a Minnesota based manufacturer of mobile radio equipment and has been in operation for over 65 years. The Company has been a leading provider of conventional and trunked radios and systems to businesses, SMR operators and subscribers, and public service operations both small and large. By various measures, E.F. Johnson has earned the number three land mobile radio market share position in the United States. As such, the Company has a significant interest in this proceeding and a substantial understanding of marketplace requirements and offers the following observations and recommendations regarding this Notice.

II. PUBLIC SAFETY WIRELESS ADVISORY COUNCIL (PSWAC)

PSWAC was an extensive effort of public safety users and manufacturers to develop a comprehensive assessment of public safety communications and spectrum requirements. E.F. Johnson participated in the subcommittee efforts involved and in the review process. The Company feels that the process fairly resulted in accurate identification of today's problems and concerns and projected public safety user's needs in the future within reasonable parameters. The Company fully supports the process.

The Draft PSWAC Final Report (Report) delineates several key concerns and resultant recommendations that must be implemented to avoid a major predicament in the public safety area. These are:

1. The lack of interoperability between public safety agencies, whether due to technology or spectrum assignments. Some level of interoperability is essential to assure inter-agency communications during times of disaster and other, less dramatic, situations.
2. The lack of adequate radio spectrum for public safety users to be able to perform their increasingly demanding and hazardous duties safely and effectively, today or in the future. Additional spectrum is a must.
3. Advanced services that may substantially improve the fundamental performance of public safety agencies are not fully implementable due to the spectrum deficiency. Additional spectrum is a must.

E.F. Johnson strongly recommends that the Commission pursue all possible actions to accomplish the above and other key recommendations in the PSWAC Report including the immediate allocation of additional spectrum for public safety users.

III. APCO/NASTD/FED PROJECT 25 STANDARD (PROJECT 25)

In 1989 a coalition of public safety users initiated a cooperative project to develop a digital trunking standard for public safety systems. The effort was guided by a steering committee consisting of equal representation from each of the local, state and federal public safety user communities. Users provided the functional requirements and manufacturers the technical responses needed for a standard technology development directed to the following key requirements:

1. Provide needed features and functionality
2. Improve spectrum efficiency
3. Facilitate competition among manufacturers and vendors
4. Assure interoperability among users
5. Provide compatibility between systems

6. Facilitate migration from today's systems to the most spectrum efficient systems of tomorrow

Participants (users and manufacturers) in Project 25 have invested thousands of person-hours developing the requirements and technology standards designed to be responsive to the key (and many other) requirements users identified for Project 25. Public Safety users provided the requirements and manufacturers provided the solutions in a joint effort. Project 25 continues to develop user requirements and technology for "Phase II" which will result in a further improvement of spectrum efficiency to 4 to 1 over current 25 kHz analog systems. E.F. Johnson has supported fully the Project 25 effort from its inception and continues to do so. The Company offers the following observations regarding Project 25 Standards:

1. Project 25 Standards Have Been User Driven From The Beginning.

None of the participating manufacturers had all of their unique technologies selected for the standard. All technology proposals were evaluated by the Project 25 Steering Committee using objective criteria focused on answering user's needs. For example:

- $\pi/4$ QPSKC modulation was selected as fulfilling the requirements to provide maximum data rate within both 12.5 and 6.25 kHz channel bandwidths.
- The Improved Multi-Band Excited (IMBE) Vocoder was selected only after a comprehensive evaluation utilizing Mean Opinion Score comparisons among competitive Vocoders including CELP and Motorola's VSELP.
- The entire digital signaling format, frame, and word definitions were developed "from scratch" to meet the overall requirements defined by users.
- Frequency Division Multiple Access (FDMA) technology was selected by the Steering Committee as the most flexible system approach to satisfy user requirements, including talkaround and easy migration. Time Division Multiple Access (TDMA) and Code Division Multiple Access (CDMA) did not meet user's needs.

2. Project 25 Standards Will Promote Competition

All levels of equipment suppliers have participated in the development of the Project 25 Standard. Important compatibility issues have been resolved among manufacturers of radios and infrastructure; additional compatibility specifications are being developed in conjunction with peripheral suppliers such as console manufacturers.

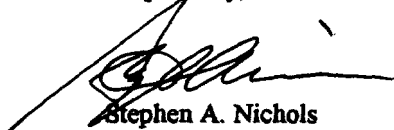
3. Project 25 Standards Are Supported By Multiple Manufacturers

Since the beginning of the Project 25 effort, several unexpected radio manufacturers have surfaced as active participants; these include BK Radio, Stanilite Pacific Ltd., Transcript International, Garmin, and Midland; (existing manufacturers included E.F. Johnson and Motorola). We understand that all of these manufacturers have signed Intellectual Property Right (IPR) agreements as needed to secure access to proprietary information. A Memorandum of Understanding that assures reasonable and non-discriminatory access to IPRs for Project 25 has also been executed among all of the manufacturers involved in the process, including Ericsson, Maxon, Standard and others. Competition is being enhanced and the barriers to entry have been lowered by the development of technology standardization

4. SUMMARY

E.F. Johnson recommends that the Key Recommendations in the PSWAC Report be implemented and that Interoperability be assured by mandate of the APCO/NASTD/FED Project 25 Standards.

Respectfully,



Stephen A. Nichols

Senior Director Marketing